

Chapter → DIVIDEND POLICY

Dividend → It is the amount taken out of profit in order to distribute it (return) to its original investors, i.e., Shareholders.

\* Let's see the example below -

ABC firm earned a total revenue of ₹ 10,00,000/- in the FY 2018-2019. Its expenses is ₹ 2,00,000, interest on debentures is ₹ 2,00,000 in the same financial year.

$$\begin{aligned} \text{Now, profit} &= 10,00,000 - 2,00,000 - 2,00,000 \\ &= ₹ 6,00,000/- \end{aligned}$$

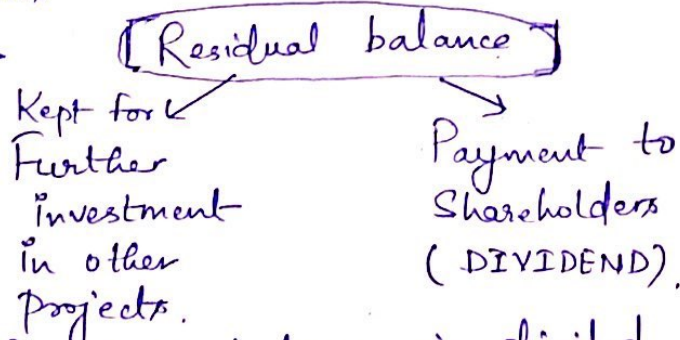
The above profit of ₹ 6,00,000 is before tax. Let's say they have to pay a tax of 20% on above profit then,

Profit after tax / Earning after tax for ABC will be -

$$\begin{aligned} \text{(PAT)} & 6,00,000 - (6,00,000 \times 20\%) \\ &= 6,00,000 - 1,20,000 \\ &= ₹ 4,80,000/- \text{ (PAT)} \end{aligned}$$

This above amount of ₹ 4,80,000 is the last amount left, so it can also be called Residual balance.

This Residual balance belongs to the investors (shareholders) of the firm. This amount can be used in two manners as given



Practically, the Residual balance is divided into 2 main parts - Dividend and Retained Earnings.

So, dividend is a part of amount paid out of the profit.

Whereas, Retained earning is the amount which is left after paying to shareholders from profit.

### \* Dividend Pay-out vs Retained Earnings.

Shareholder  
view point.

↓  
Want to increase current return on investment.

↓  
Time value of money plays role.

↓  
Money today is more valuable as compared to tomorrow.

↓  
Dividend Preferred and comparatively less amount is retained out of profit.

Company's Management  
view point.

↓  
Dividend may reduce cash in hand.

↓  
More cash is required for future business growth.

↓  
Less amount is paid to the shareholders and major amount is Retained.

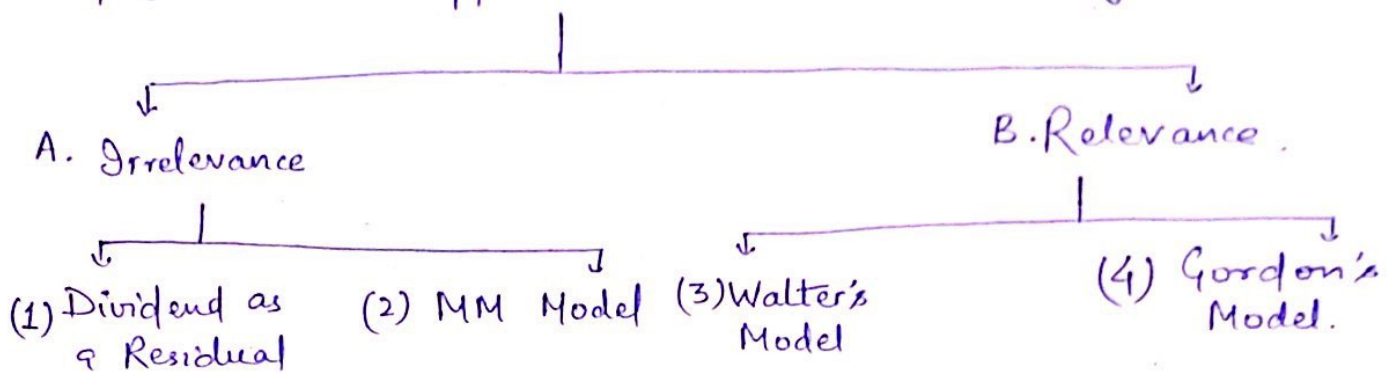
↓  
Retained Earning is preferred as it can mostly be more economic source of finance for a company.

Note — In above two cases "Retention of Earning" is considered as a source of fund but in different quantum. Sometimes, Retention rate can also be used as indicator of future growth of a firm.

Now, coming to the Dividend Policy !

→ The dividend policy, also known as pay out policy is a policy followed by the management in order to determine the size and pattern of distribution to shareholders over time. Here the firm decides on the percentage of earning that it should pay out as dividend.

There are 2 approaches to dividend policy



A (1) Irrelevance of Dividend Policy Approach. (RESIDUAL)

→ Under this theory, dividend decision has no impact on the wealth of shareholders or prices of shares and thus it is irrelevant for valuation of the firm.

Under Residual approach, the residue money may be invested further in the business or distributed to the shareholders. (Purely a financing decision). Here payment of dividend is a passive residual.

The investors become indifferent between dividend pay out and retention of earnings.

But on the contrary certain things are observed as mentioned —

Criticism -

- ① Firm's rate of return  $<$  Market rate of Return  $\rightarrow$  Investors opt dividend.
- ② Firm's rate of return  $>$  Market avg. Rate of Return  $\rightarrow$  Investors will prefer to retain the earning.

### A.(2) Irrelevance of Dividend Policy Approach (MM-Model)

Modigliani and Miller (MM) has given an argument for irrelevancy of dividends. According to them, dividend pay out ratio is just a date and has no impact on the wealth of shareholders.

MM theory says that value of the firm is determined by the earning power of the firm's assets or its investment policy. The MM model has following assumptions -

1. There exist perfect capital markets.
2. Investors behave rationally and they have all information.
3. No investor is large enough to affect the market.
4. There is no tax, no floatation cost and no transaction cost.
5. The firm has rigid investment policy and it does not subject to change.
6. Investor is certain about the future investments and profit. Thus, discount rate is equal to cost of capital ( $r = k_e$ ).

MM model says that effect of dividend is neutralized  
by issue of new securities.



Payment of Dividend increase → at same time it  
market value of share, reduces the fund available  
as retained earnings.

This will result in issuing new shares (to raise fund)  
in the market and thus reducing the market price of  
the share. MM model suggests that -

Sum of discounted  
value per share after  
financing & dividend  
paid = Market value per share  
before the payment of  
dividends.

MM model sets the relationship between Present value of  
Share w/o dividend payout at the end of financial  
year, and requirement of additional fund, as shown  
in equation 1 below -

$$P_0 = \frac{D_1 + P_1}{1 + K_e}$$

$P_0$  → Market price <sub>(MP)</sub> per share at <sup>Current price.</sup> beginning or prevailing MP.

$D_1$  → Dividend to be received at the end of the year.

$P_1$  → MP at the end of the year (Capital gain).

$K_e$  → Cost of equity capital.

From equation 1, Present value of share at the end period (Market price at end i.e.  $P_1$ ) can be computed as equation 2.

$$P_1 = P_0 (1 + K_e) - D_1 \quad \left. \vphantom{P_1} \right\} \text{Pv of share}$$

↳ Future price.

The new funds required after end of period may be obtained by issuing new shares at price ( $P_1$ ) and number of share to be issued ( $m$ ), so fund raised will be  $m P_1$ . This can be expressed as equation 3 below -

$$\text{no. of shares} \leftarrow n P_0 = \frac{1}{1 + K_e} [n D_1 + (n+m) P_1 - m P_1]$$

The above equation explains, the total value of all shares outstanding at beginning of the period ( $P_0$ ) is the present-value of total dividends paid at the time  $P_1$  + total value of all stock outstanding at  $P_1$  - total value of new stock issued.

The value of new stock can be calculated as -

$$m P_1 = I - (E - n D_1) \rightarrow \text{Equation 4}$$

where,  $m P_1$  → Required fund at end in equal no. of shares.

$I$  → Required amount of investment.

$E$  → Total earnings of the firm.

$n D_1$  → Total dividend paid.

$E - n D_1$  → Amount of Retained earnings

By replacing value of equation 4 in equation 3 we will obtain —

$$nP_0 = \frac{1}{1+K_e} \left( (n+m)P_1 - I + E \right) \rightarrow \text{Value of firm}$$

The above equation shows that the value of firm is neither affected by current dividend nor future dividend.

Example - ABC Ltd is functioning in an industry which carries a risk of 12% (Cost of equity capital). The company has share capital of ₹ 4,00,000 (4000 shares of ₹ 100 each). The company expects to have a net income of ₹ 5,00,000 and has proposal of making new investment of ₹ 10,00,000. You are required to show whether payment of dividend affect the value of firm or not under MM approach when it plans to declare dividend @ ₹ 10 per share.

Ans : Current value of share ( $P_0$ ) = ₹ 100.  
Dividend paid at the end = ₹ 10.  
Earning in current-year → ₹ 5,00,000  
Investments = ₹ 10,00,000.  
 $K_e = 12\%$ .

Case 1 : Dividend is paid.

Case 2 : Dividend is not paid.

### Dividend is Paid

1. P<sub>1</sub> of share

$$P_1 = P_0(1+K_e) - D_1$$

$$P_1 = 100(1+0.12) - 10 = 102$$

2. No. of shares to be issued

$$m = \left[ \frac{I - (E - nD_1)}{P_1} \right]$$

$$m = \frac{10,00,000 - (5,00,000 - 4000 \times 10)}{102} = \frac{5,40,000}{102} = 5294.11$$

3. Value of firm

$$nP_0 = \frac{1}{1+K_e} [(n+m)P_1 - I + E]$$

$$= \frac{(4000 + 5294.11) \times 102 - 10,00,000 + 5,00,000}{1.12} = \frac{4,48,000}{1.12} = 4,00,000$$

### Dividend not paid.

$$P_1 = \frac{100(1+0.12) - 0}{1.12} = 112$$

$$m = \frac{10,00,000 - (5,00,000 - 4,000 \times 0)}{112} = \frac{5,00,000}{112} = 4464.28$$

$$= \frac{(4000 + 4464.28) \times 112 - 10,00,000 + 5,00,000}{1.12}$$

$$= \frac{4,48,000}{1.12} = 4,00,000$$

As can be seen above in both the cases — where dividend is paid and where dividend is not paid, the value of the firm remains the same i.e., 4,00,000.

Remember, MM model has many limitations due to its unrealistic assumptions of perfect market, No tax, no flotation cost, no transaction cost etc.



## B. Relevance of Dividend Policy Approach.

There is another school of thought which talks about the relevance of dividend policy. This approach says that current dividend payments will reduce investors uncertainty & thus investors will discount firm's earning at lower rate. Placing higher value of firm's stock and vice-versa.

→ Professor Walter talks about relationship between relationship between discount rate ' $r$ ' and cost of capital ' $k$ '.

⇒ Professor Gordon suggests that shareholders have preference for current dividend.

### B.(1) Walter's Approach.

→ Prof. Walter suggested that there is a positive relation between  $r$  and  $k$ . The cost of raising fund is different for each firm due to difference in size, risk, nature of business etc.

Thus, expected rate of return ( $r$ ) and cost of capital ( $k$ ) may vary in different situations. Dividend pay out ratio will be decided accordingly. The 3 different conditions are —

⑨

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Relationship between $r$ and $k$ .	Increase in Dividend Payout.	Decrease in Dividend Payout.
1. $r > k$	Value of the firm decreases.	Value of firm increases.
2. $r < k$	Value of the firm increases.	Value of the firm decreases.
3. $r = k$	No change in the value of firm.	No change in the value of firm.

1 → When  $r$  (Internal rate of return)  $>$   $k$  (cost of capital).  
 Growth firms → Here the optimum dividend pay out ratio is 0%. (The cost of capital can also be termed as expected return). These firms have the capacity to earn more return for their Shareholders if the earning is retained by investing for further growth.

2 → When  $r < k$  → Here, firm's actual return is less than expected. The firm is in declining stage and it gives less return to shareholders as compared to what shareholder would have earned if he would have invested money somewhere else. So, its illogical for the company to retain earning. The optimum dividend pay out ratio in this case is 100%.

3 → When  $r = k$  → The dividend policy will have no impact on value of firm.

\* Assumptions of Walter model -

1. The firm uses its own retained earnings to fund new investments.
2. The ' $r$ ' and ' $k$ ' of the firm are constant.
3. The firm has an infinite life.
4. Earnings and dividends do not change while determining the value of the firm.

Walter model proposes the following formula to compute Market price per share :

$$P = D + r \frac{(E-D)}{K_e} / K_e$$

OR.

$$\frac{D}{K_e} + \frac{r(E-D)}{K_e}$$

Where,

$P$  = Market price of equity share.

$D$  = Dividend per share

$r$  = Rate of return.

$E$  = Earning per share

$K_e$  = Cost of equity capital.

\* Limitations of Walter Model.

1. Assumption of funding new project from retained earning limits the expansion of business.
2. The rate of return and cost of capital being constant is an unrealistic assumption.

Example.

Q. Compute the market price of equity share on the basis of following information by XYZ Co. Ltd.

Cost of capital  $\rightarrow 10\%$ ; EPS = ₹ 50; Rate of Return = 8%

Dividend pay out ratio  $\rightarrow 0\%$ , 40%, 80% and 100%.

Ans  $\rightarrow P = \frac{D}{K_e} + \frac{r(E-D)}{K_e}$

Cases	(i)	(ii)	(iii)	(iv)
Dividend pay-out	0%	40%	80%	100%
Dividend (₹) [D]	0	(50 × 40%) ↓ ₹ 20	₹ 40	₹ 50
$K_e$	0.10	0.10	0.10	0.10
$r$	0.08	0.08	0.08	0.08
E	50	50	50	50

E-D	50	30	10	0
Price of equity	$\frac{0}{0.10} + \frac{0.08(50)}{0.10}$	$\frac{20}{0.10} + \frac{0.08(30)}{0.10}$	$\frac{40}{0.10} + \frac{0.08(10)}{0.10}$	$\frac{50}{0.10} + \frac{0.08(0)}{0.10}$
	= 0 + 400	= 200 + 240	= 400 + 80	= 500 + 0
	= 400	440	= 480	= 500.

In the above case it can be seen that  $r < k$ ; thus an increase in dividend pay out ratio increase the value of share price.

## B. (2) Gordon's Approach.

Prof. Myron J. Gordon developed a model on relevance of dividend in determination of value of firm.

Prof says that shareholders have preference over current dividends.

Model says that Shareholders are generally risk averse and thus they prefer current dividends over future dividends.

As per Gordon theory, the price of share <sup>is</sup> impacted when there is increase in Dividend Payout ratio under 3 situations.

<u>Situation</u>	<u>Relationship between <math>r</math> and <math>k</math></u>	<u>Increase in Dividend Payout impact</u>
1.	$r > k$	Price per share decreases.
2.	$r < k$	Price per share increases.
3.	$r = k$	No change in price of share.

- \* Growth firm ( $r > k$ )  $\rightarrow$  Shareholders are more benefitted if Co. re-invest the money.
- \* Declining firm ( $r < k$ )  $\rightarrow$  The shareholders are more benefitted if dividends are distributed.
- \* Normal firm ( $r = k$ )  $\rightarrow$  It does not make any difference if the Co. reinvested the dividend or distributed to shareholders.

## Assumptions of Gordon's model -

1. The firm has only equity capital in its structure and retained earnings represent only source of financing investment.
2. The cost of capital ( $K_e$ ) and rate of return ( $r$ ) do not change.
3. The firm has perpetual life.
4. The retention ratio 'b', is constant, the growth rate 'g' is set as function of b and  $r \rightarrow$  rate of return.  
$$\boxed{g = br}$$
5. The cost of capital for firm (remains constant) is also greater than growth rate; i.e.  $\rightarrow k > br$ .
6. Corporate tax is not accounted in this model.

Example  $\Phi$ :  $\Rightarrow$  X Co. Ltd has cost of capital  $\rightarrow 10\%$ ,  
Earning per share  $\rightarrow ₹ 20$ ; Rate of return at  
8%, 10% and 12%. Determine the value of  
Share using Gordon's model assuming the dividend  
Pay out ratio is 100%, 80%, 50% and 0%.

$$P = \frac{E(1-b)}{K_e - br} \quad \text{OR} \quad \frac{D}{K_e - g}$$

Here, P = price of equity share

E = Earning per share

b = retention ratio.

$K_e$  = Cost of equity capital

$br = g =$  growth rate of firm.

Now, as per the above formula the value of share using Gordon's model will be -

Dividend Payout Ratio	Retained Earning (b)	EPS = ₹ 20 $D = E(1-b)$ Dividend ↓	Cost of Capital (Ke)	Value of equity share $P = \frac{D}{K_e - g}$		
				$r = 8\%$ ↓ $\frac{20}{0.10 - 0}$ = 200	$r = 10\%$ ↓ $\frac{20}{0.10 - 0}$ = 200	$r = 12\%$ ↓ $\frac{20}{0.10 - 0}$ = 200
100%	0%	20	0.10 →	$\frac{20}{0.10 - 0} = 200$	$\frac{20}{0.10 - 0} = 200$	$\frac{20}{0.10 - 0} = 200$
80%	20%	16	0.10 →	$\frac{16}{0.10 - 0.016} = 190.48$	$\frac{16}{0.10 - 0.02} = 200$	$\frac{16}{0.10 - 0.024} = 210.53$
50%	50%	10	0.10 →	$\frac{10}{0.10 - 0.04} = 166.67$	$\frac{10}{0.10 - 0.05} = 200$	$\frac{10}{0.10 - 0.06} = 250$
0%	100%	0	0.10 →	0	0	0

As can be seen above,  
When  $r < k$ , at increasing Dividend payout ratio the share price will be increasing.

When  $r > k$ , at increasing Dividend payout ratio the share price will be decreasing.

When  $r = k$ , at increasing dividend payout ratio the share price will remain constant.

## Questions for Practice -

1. ABC Co. Ltd operates in an industry which carry risk @ 12%. The Co. has share capital of ₹ 5,00,000 (5000 shares of ₹ 100 each). The Company wants to declare a dividend of ₹ 10 per share. The Company expects to have a net income ₹ 6,00,000 and has a proposal of making new investment of ₹ 10,00,000. You are required to show that whether dividend is paid or not, it has no impact of on value of the firm under MM-approach.
2. Compute the market price of equity share on the basis of following information provided by S Co. Ltd.  
Cost of capital → 12% , EPS → ₹ 60 ,  
Rate of return → 8% , Dividend pay-out ratio is  
(i) Zero (ii) 40% (iii) 80% (iv) 100%.
3. The information given below<sup>are</sup> of AM Co. Ltd -  
Return on investment (r), Cost of capital (k) & EPS.  
k = 12%  
EPS = ₹ 15.  
Rate of return. = (i) 15% , (ii) 12% (iii) 9%  
Determine the value of share using Gordon's model assuming that the dividend pay-out ratio is -  
100% , 80% , 50% and 0%.